A1250-1 11/5/84

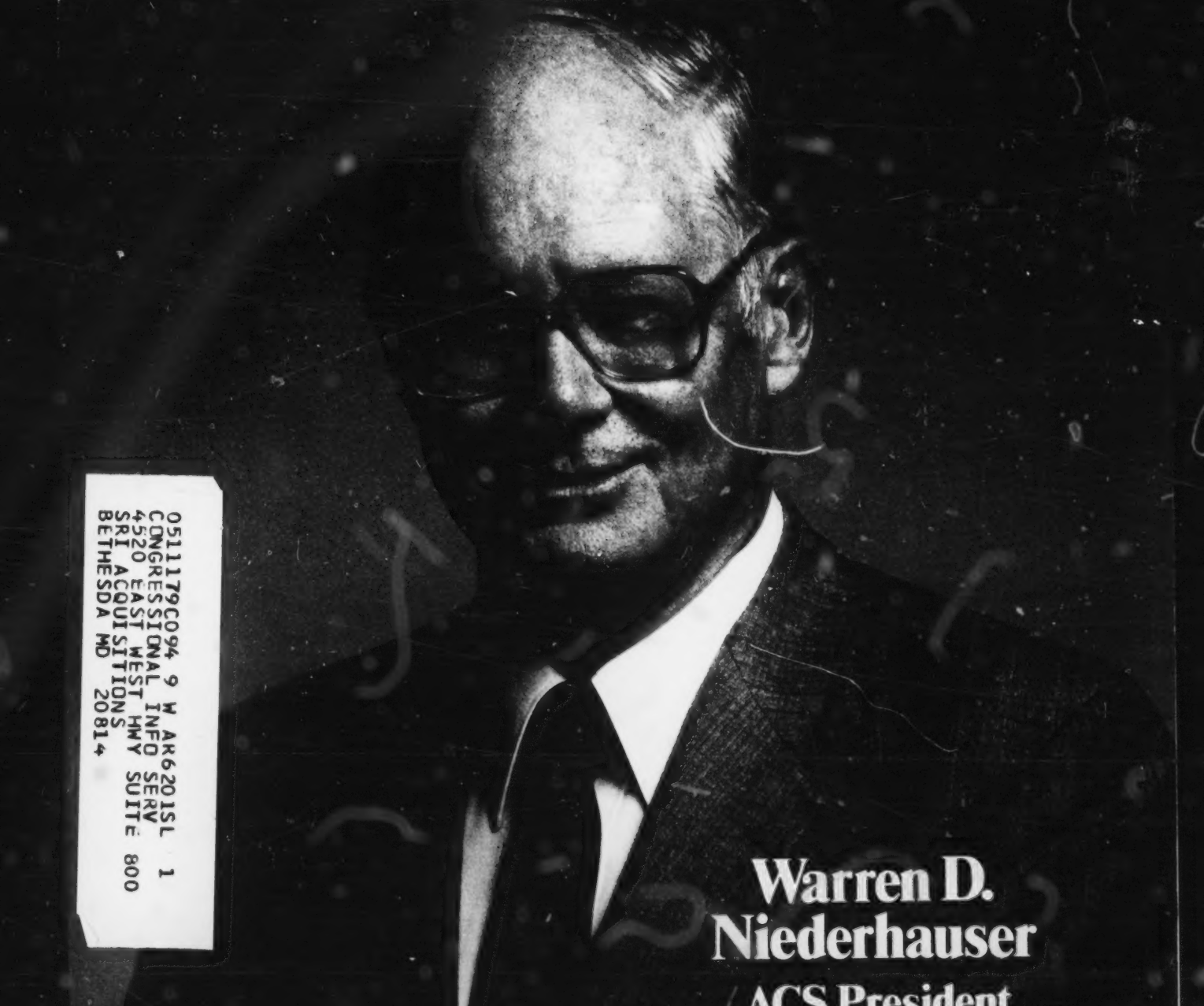
Opportunities in chemistry: Pimentel survey's first shot Page 8

Membrane mimetic chemistry may find practical uses Page 25

JANUARY 2, 1984

CHEMICAL & ENGINEERING

NEWS



0511179C094 9 W AK620ISL 1
CONGRESSIONAL INFO SERV
4520 EAST WEST HWY SUITE 800
SRI ACQUISITIONS
BETHESDA MD 20814

Warren D. Niederhauser

ACS President

Page 2

Cover: Photo by Greg Pease

CHEMICAL & ENGINEERING NEWS

Volume 62, Number 1
CENEAR 62 (1) 1–56
ISSN 0009-2347

JANUARY 2, 1984

News of the Week

■ **R&D spending in the U.S. in 1984 will rise almost 9% above 1983 levels, Battelle forecasts.** **Page 6**

■ **Ellis K. Fields wins runoff election for 1984 ACS president-elect.** **Page 7**

■ **EPA will review butadiene data to determine if use of and exposure to the chemical should be regulated under TSCA.** **Page 7**

■ **Allied will sell its liquid fertilizer business to AAC Holdings.** **Page 7**

News Focus

Understanding chemical reactivity, chemical catalysis, and the chemistry of life processes are cited as key areas for government research funding in NAS/NRC committee briefing to OSTP. **Page 8**

Business

Petrochemical industry must rationalize and innovate to compete with oil-rich countries, Union Carbide official warns. **Page 17**

Government

Environmental Protection Agency issues a national strategy for investigating and cleaning up dioxin-contaminated sites. **Page 20**

Study of effects of occupational exposure to benzene, conducted for CMA, gives mixed results concerning health hazard. **Page 21**

Science

New nuclear magnetic resonance technique developed by Columbia professor measures exit rates of micellar radicals. **Page 23**

Technology

Premium coal sample program at Argonne National Laboratory will process selective types of coals for use by researchers. **Page 24**

ACS News

ACS will make membership list available on a controlled-use-for-royalty basis to sellers of scientific products. **Page 40**

President's Message 2
Letters 4
Editor's Page 5

Concentrates
Business 16
Government 19
Science/Technology 22

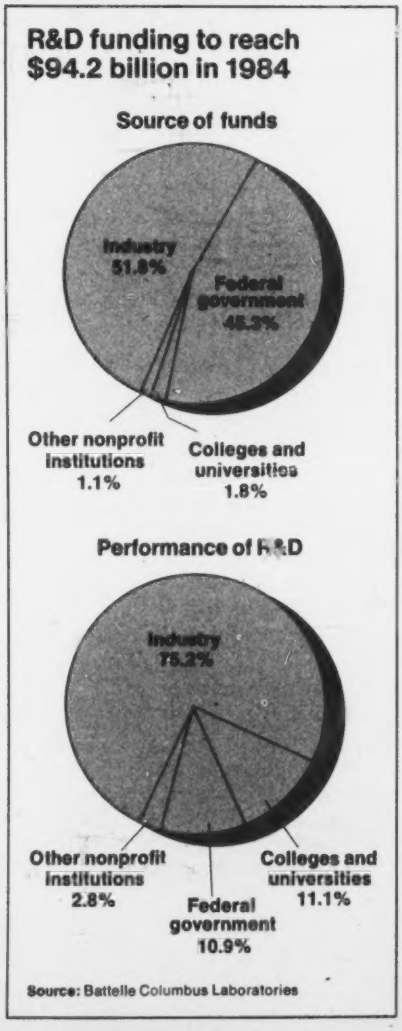
The Departments
Newscripts 56

Special Report

Membrane mimetic chemistry shows promise in controlling rates of reactions, targeting drug delivery systems. **Page 25**

R&D FUNDING OUTLOOK: Battelle forecasts 9% rise in 1984

Research and development in the U.S. again will be funded generously in 1984, with industry sponsors continuing to provide the largest increases. Expenditures for U.S. R&D will be about $94.2 billion in 1984, Battelle Memorial Institute's Columbus division says in its annual R&D forecast. According to Battelle economists Jules J. Duga and W. Halder Fisher, that sum will be up 8.9% over the $86.5 billion the National Science Foundation estimates for R&D in 1983.



The Battelle forecasters expect that inflation in R&D costs will be only 5% in 1984. If that assumption holds true, real growth in R&D will be about 3.7%, slightly higher than the 10-year average annual increase of 3.3%.

Industry will continue to outpace the federal government in R&D support. Industry is expected to provide $48.8 billion, a 10.3% increase from 1983 and 51.8% of the total. Federal government funds for R&D will rise 7.8% to $42.7 billion, or 45.3% of the total. Academic institutions will account for $1.7 billion, or 1.8% of the total. Funding by other not-for-profit organizations will drop slightly, to just under $1 billion, 1.1% of the total.

During the past 10 years, Battelle notes, industrial R&D support grew at a compound annual rate of 5.2%, but federal support increased, on average, only 2.9%. Part of next year's increase in industrial R&D can be attributed to the improving economy. But another factor is the "relaxation of real and perceived barriers to cooperative research." This has encouraged multicompany-supported R&D programs at universities and not-for-profit organizations, Battelle says, and also has led to the creation of dedicated research centers supported by groups of firms.

As usual, industry will do most of the work. For 1984, performance of R&D by industry will rise to $70.8 billion, or 75.2% of the total (compared to 72.5% in 1983). In-house federal research will amount to $10.3 billion (10.9% of the total). R&D by academic institutions will account for $10.5 billion (11.1%). R&D by other not-for-profits will come to $2.6 billion (2.8%).

Four government agencies (Department of Defense, National Aeronautics & Space Administration, Department of Energy, and Department of Health & Human Services) will account for 90.9% of the total federal R&D funding in 1984—not much change from 1983, Battelle says. However, the apportionment among these four will change significantly.

DOD will fund 64.5% of the federal total, compared to 58.9% in 1983, with the increase directed mainly toward the acquisition of major weapons systems. NASA's share of the total will decline to 7.0% from 8.2% in 1983. Although the space shuttle's success will justify continued support, much of that support will be transferred from R&D to operational programs, Battelle notes. Energy R&D funding also will decline, except for defense-related programs. DOE will account for 9.9% of the total, compared to 11.7% in 1983. Similarly, HHS will account for 9.5%, compared to 11.0% in 1983.

Thanks to the re-emphasis of defense, the aerospace industry will regain its former pre-eminence in industrial R&D, with funding of more than $15.8 billion (72.9% federally funded). Last year's leader, the electrical machinery and communications industry, will come in a strong second, with $14.5 billion (39.3% federally funded).

Other major sectors of industrial R&D include machinery ($9.1 billion), chemicals ($8.2 billion), autos and other transportation equipment ($6.2 billion), professional and scientific instruments ($5.8 billion), petroleum products ($2.9 billion), and food and beverage products ($1.0 billion). The total for all manufacturing industries will come to $68.5 billion, with 68.2% from the industries and 31.8% from the federal government. □